

CLAIMS

1. A radio transmission apparatus comprising:
a coding section that codes data;
a modulation section that generates a symbol from
5 coded data and places the symbol in one of a plurality
of signal points on an IQ plane;
an assignment section that assigns the generated
symbol to one of a plurality of subcarriers constituting
a multicarrier signal;
10 a changing section that changes a phase of each of
the plurality of subcarriers within a range that does
not cross a decision boundary between the signal point
in which a symbol assigned to each of the plurality of
subcarriers is placed and an adjacent signal point;
15 a generating section that generates a multicarrier
signal from the plurality of subcarriers with changed
phases; and
a transmission section that transmits the
multicarrier signal to a radio reception apparatus.

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2. The radio transmission apparatus according to claim
1, wherein the changing section further changes an
amplitude of each of the plurality of subcarriers within
the range that does not cross the decision boundary between
25 the signal point in which the symbol assigned to each
of the plurality of subcarriers is placed and the adjacent
signal point.

3. The radio transmission apparatus according to claim 2, wherein the changing section decreases an amplitude of each of the plurality of subcarriers to decrease
5 transmission power.

4. The radio transmission apparatus according to claim 1, further comprising a determination section that measures peak power of the multicarrier signal and
10 determine whether or not the peak power is equal to or greater than a threshold,

wherein the changing section increases a change amount when the peak power is equal to or greater than the threshold.

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5. The radio transmission apparatus according to claim 1, wherein:

the modulation section performs adaptive modulation per subcarrier; and

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the changing section decreases a change amount as an M-ary modulation level used in the modulation section is greater.

6. The radio transmission apparatus according to claim 1, wherein:

the modulation section performs adaptive modulation per subcarrier; and

the changing section makes a subcarrier among the plurality of subcarriers subject to change, the subcarrier having a difference equal to or greater than a threshold, between reception quality at the radio
5 reception apparatus and required quality for a modulation scheme used in the modulation section.

7. The radio transmission apparatus according to claim 6, wherein the changing section determines a change amount
10 according to the difference between the reception quality and the required quality.

8. The radio transmission apparatus according to claim 1, wherein:

15 the coding section codes the data to generate a systematic bit and a parity bit;

the modulation section modulates the systematic bit and the parity bit generated in the coding section to generate a symbol; and

20 the changing section makes a subcarrier, to which a symbol comprised of only the parity bit is assigned, subject to change among the plurality of subcarriers.

9. A radio communication base station apparatus
25 comprising the radio transmission apparatus according to claim 1.

10. A radio communication mobile station apparatus comprising the radio transmission apparatus according to claim 1.

- 5 11. A peak power suppression method in multicarrier communication, comprising changing a phase of each of a plurality of subcarriers constituting a multicarrier signal within a range that does not cross a decision boundary between a signal point on an IQ plane in which
10 a symbol assigned to each of the plurality of subcarriers is placed, and an adjacent signal point, to suppress a peak power of the multicarrier signal.